

Microelectronics

USSR

UDC 621.38:61

NAVERIANI, S.V., LEZHAVA, G.G., CHIKHLADZE, N.I.

"Microelectronic Circuit Of Multivibrator For Impedance Pneumograph"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic Technica. Scientific-Technical Collection. Microelectronics), 1971, Issue 5(31), pp 145-146 (from RZh:Elektronika i yeye primeneniye, No 5, May 1972, Abstract No 5A257)

Translation: In known circuits conversion of a change of chest impedance (during breathing) into an electrical signal amounts to the fact that the [vector] impedance of the chest tissue is connected into a discontinuity [razryv] of the feedback circuit of the oscillator. In the process small changes of the impedance change the feedback very slightly, and as a consequence small changes are produced of the output voltage at the oscillator output (with deep breathing, a deviation of ~ 5 percent). In order to increase the sensitivity, a multivibrator was developed, fulfilled by a circuit of a 2-stage amplifier with feedback using Type 2P332 silicon noncased semiconductors [PP] and deposited elements. The [vector] impedance of the chest cage, reduced to two active and one capacitance components of the chest impedance, enter the time-diver network of the multivibrator. At the input the capacitance component is 1/2

USSR

NAVERIANI, S.V., et al. Elektron.tekhnika.Nauch.-tekhn.sb.Mikroelektronika, 1971, Issue 5(31), pp 145-146

decreased and the active component is increased. The circuit of the multivibrator assures direct conversion of the chest impedance into a FM-sequence of pulses. With the use of electrodes having an area of 8 cm^2 , deviation of the frequency in the presence of deep breathing reaches 50--50 percent of the center frequency of 50 kHz. The circuit is arranged directly on the electrode which considerably increased the noise immunity and reliability. 1 ill. 2 ref. N.M.

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USSR

UDC 621.73.001.5

SMIRNOV-ALYAYEV, G. A., and CHIKIDOVSKIY, V. P.

"Experimental Studies in Pressure Working of Metals"

Leningrad, Eksperimental'nyye issledovaniya v obrabotke metallov davleniyem, (cf. English above), Mashinostroyeniye, 1972, 360 pp (from Eksperimental'nyye issledovaniya v obrabotke metallov davleniyem, Mashinostroyeniye, 1972, pp 2, 360)

Translation of Annotation: A study was made of the problems of stating and performing experimental studies based on the primary principles of probability theory and mathematical statistics and processing of the results. The methods of studying the stress-strain state of plastically worked metals are discussed which are illustrated by examples of the experimental operations.

The book is designed for scientific and engineering and technical personnel doing research in the field of pressure working of metals. It can also be useful to postgraduates and students specializing in the given field.

There are 90 tables, 164 illustrations and an 88-entry bibliography.

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SMIRNOV-ALYAYEV, G. A., et al., Experimental'nyye issledovaniya v obrabotke metallov davleniyem, Mashinostroyeniye, 1972, 360 pp

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USSR

UDC 539.374

CHIKIDOVSKIY, V. P., RUVINSKAYA, L. L.

"Study of Factors Effecting the Deformation of a Membrane"

V sb. Inzh. metody rascheta plastich. obrabotki met. (Engineering Methods for Calculating the Plastic Working of Metals -- Collection of Works), Tallin, 1971, pp 241-251 (from RZh-Mekhanika, No 12, Dec 71, Abstract No 12V620)

Translation: The effect of the mechanical properties of a material, the deformation conditions, and the structure of the material on the deformation of sheet blanks subjected to biaxial stretching is studied. The mechanical properties were determined from tests on the uniaxial stretching of membranes of L62 brass and 1Kh18N9T steel. The nature of the distribution of the intensity of deformations along the generating line of the membrane was investigated upon the deformation of membranes of these materials; also investigated was the effect of load conditions on the intensity of the deformed state and breakdown. The experimental results under static and pulsed loads are compared. The behavior of the dies of steel in the limiting case is identical both under static and under pulsed load and the behavior of brass membranes was different.

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CHIKIDOVSKIY, V. P., RUVINSKAYA, L. L., Inzh. metody rascheta plastich. obrabotki met., Tallin, 1971, pp 241-251

Values are given for the limiting values of the deformation obtained under various stress states and rates of deformation on an Erickson instrument. Approximating relationships are constructed which give good agreement with experiment. Structural changes in the material occurring in the deformation process are studied. K. Soonets.

2/2

CHIKIN A.I.

Acc. Nr:

AP0043735

Abstracting Service: 5/70
INTERNAT. AEROSPACE ABST.

Ref. Code:

UR 0841

2

A70-23132 # Certain problems of constructing radio
interferometers with autonomous reception (Nekotorye voprosy
postroeniia radiointerferometrov s avtonomnym priemom). V. A.
Alekshev, E. D. Gateliuk, V. D. Krotikov, V. N. Nikonov, V. S.
Troitskii, and A. I. Chikin (Gor'kovskii Gosudarstvennyi Universitet,
Gorki, USSR). *Radiofizika*, vol. 13, no. 1, 1970, p. 5-15, 24 refs. In
Russian.

Discussion of the design principles of astronomical radio
interferometers which feature autonomous reception—i.e., the
absence of coupling between the reception points. The data are
recorded at each reception point in conjunction with reference
signals from frequency standards. The sensitivity of correlation
devices which process data in digital form or in computer binary
code is analyzed, and attention is given to possible improvements in
high-resolution radio interferometers.

T.M.

1.5

REEL/FRAME
19770141

18

USSR

UDC: 621.373.533(088.8)

CHIKIN, G. N.

"A Flip-Flop"

USSR Author's Certificate No 268013, filed 2 Oct 68, published, 9 Feb 70
(from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2G285 P)

Translation: This Author's Certificate introduces a flip-flop based on magnetic cores with a diode rectifier and a diode filter connected at the output. To increase speed, the flip-flop is made on the basis of a parametric circuit consisting of a capacitor in parallel with which are two series-connected windings located on the corresponding cores, this circuit being coupled to the output terminals through the rectifier and filter.

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USSR

SUKNENKO, V. V., CHIKIN, L. A.

"One System for Automation of Programming of Classes of Problems"

Matematika, Nekotor. Eyc Pril. i Metodika Prepodav. [Mathematics, Some of its Applications and Methods of Teaching -- Collection of Works], Rostov-na-Donu, 1972, pp 19-25 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V659, by V. Mikheyev).

Translation: A description is presented of a system for automation of programming of individual classes of programs, based on a simplified algorithmic language. Each such class is defined by a certain system of standard procedures, and the solution of any specific problem is achieved by a certain sequence of procedures from this system. The system of procedures is realized by the subroutines of a specific computer, allowing successful utilization of the capabilities of the computer itself as well as the accumulated experience in automation of programming, through the library of standard subroutines. Information on the problem is fixed in the form of a matrix, the rows of which correspond to individual procedures and contain the actual parameters of the procedures. The suggested input language contains a small number of structures. All preparation of the problem for computer solution is

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USSR

Suknenko, V. V., Chikin, L. A., Matematika, Nekotor. Epe Pril. i Metodika
Prepodav., Rostov-na-Donu, 1972, pp 19-25.

performed by the consumer and consists in writing its algorithm in the input language and fixation of the initial information. The algorithms are written in the input language of a specific computer by means of an interpreter program. The basic structures of the language are variables and operators. Variables may be of two types -- matrix and supplementary. Matrix variables refer to quantities which are elements of the matrix of information and are identified by row and column numbers. Supplementary variables refer to individual values included in the output parameters of the procedures and are represented by individual letters. The initial data of the problem and constants are considered particular cases of matrix variables, and are included in the program as such. The values of these variables are determined in the initial inscription into the information matrix. The operators in the language are designed for performance of the following operations: access of subroutines in machine code; transmission of information from one row of a matrix to another and entry of output parameters of subroutines in the matrix; branching of computational processes; organization of external loops; printing

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USSR

Suknenko, V. V., Chikin, L. A., Matematika, Nekotor. Epe Pril. i Metodika
Prepodav., Rostov-na-Donu, 1972, pp 19-25.

of intermediate and final results; stopping of the machine. The operators are equipped with numerical labels. At the beginning of each program is a description of the matrix, containing information on its dimensionality. Algorithms, written in input language, are produced in two successive stages using the interpreter, which consists of two main parts -- the analyzing program (AP) and the interpreting program (IP). A specific realization of the interpreter is presented for the Ural-11 computer. The IP is constructed according to the principles of organization of the IS-2 interpreting system for the M-20 computer. It is noted that the system suggested has been tested in calculation of curved surfaces for shipbuilding, problems of generation of dimensions for drawings in machine building and statistical processing of data. 4 biblio. refs.

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CHIKIN, M. N.

DC 629.78.045.3/.4/61.719-611.761
MICROFLORA IN A CLOSED CABIN IN A TEST-FLY ENTERTAINMENT WITH HIGH SUBEQUITY
AT A REDUCED TEMPERATURE AND HIGH RELATIVE HUMIDITY
[Article by E. D. Potokhantsev and V. N. Chikina, Moscow, Institut
Mikrobiy i Meditsiny, Russian, Vol 5, No 5, September-October, 1967,
pp 89-90, submitted for publication 22 December 1968]

It has been established that a combination of spaceflight factors and antibacterial immunity (Yu. V. Mashkovtsov). Data are also available on the possibility under those conditions of intensifying the protective properties of microorganisms (Yu. G. Melnikov and S. N. Zolotarev).

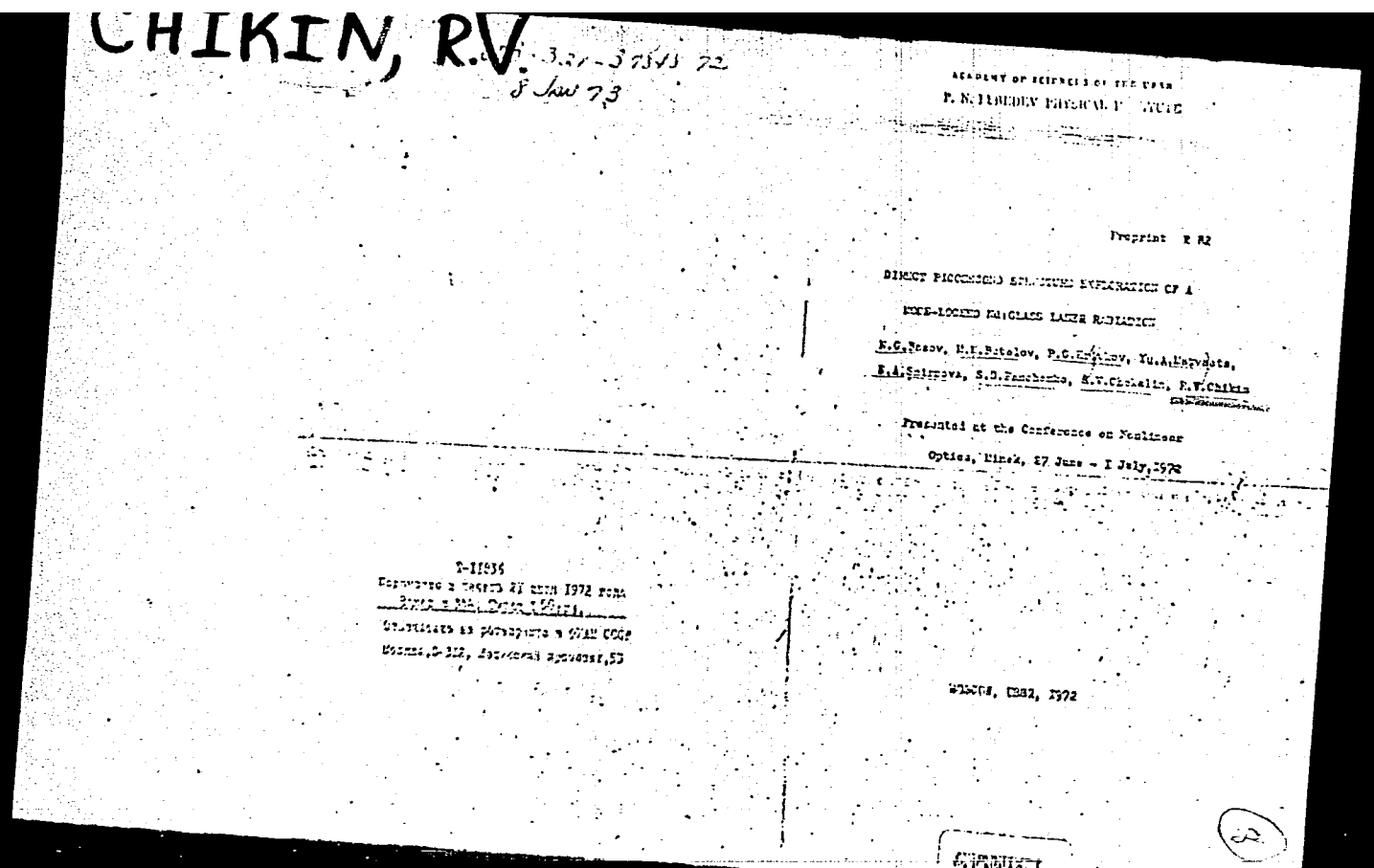
1. **Исходные данные**

Исходные данные									
Матрица (коэффициент матрицы) A									
№	Имя	Средняя оценка	По классам					Средняя оценка по классам	
			1 класс	2 класс	3 класс	4 класс	5 класс		
1	Григорьевский, Григорий	25	37	61	61	61	61	28	
2	Иванов, Иван	25	37	61	61	61	61	28	
3	Иванов, Иван	25	37	61	61	61	61	28	
4	Иванов, Иван	25	37	61	61	61	61	28	
5	Иванов, Иван	25	37	61	61	61	61	28	
6	Иванов, Иван	25	37	61	61	61	61	28	
7	Иванов, Иван	25	37	61	61	61	61	28	
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9	Иванов, Иван	25	37	61	61	61	61	28	
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38	Иванов, Иван	25	37	61	61	61	61	28	
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43	Иванов, Иван	25	37	61	61	61	61	28	
44	Иванов, Иван	25	37	61	61	61	61	28	
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46	Иванов, Иван	25	37	61	61	61	61	28	
47	Иванов, Иван	25	37	61	61	61	61	28	
48	Иванов, Иван	25	37	61	61	61	61	28	
49	Иванов, Иван	25	37	61	61	61	61	28	
50	Иванов, Иван	25	37	61	61	61	61	28	

[illegible]

WHS 57517
15 Nov 72

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DIRTY PICOSECOND STRUCTURE PATTERN OF A MODE-LOCKED
MI GLASS LASER RADIATION

S.G. Ruzay ¹⁾, M.M. Tatarov ²⁾, P.G. Kravtsov ³⁾,
Yu.A. Matveev ⁴⁾, N.A. Gerasimov ⁵⁾, D.G. Pavlovskiy ⁶⁾,
S.V. Chirkin ⁷⁾, A.V. Chirkin ⁸⁾

INTRODUCTION

Presently the mode-locked MI-glass lasers are the subject of extensive research efforts aimed at the determination of their radiation shape and duration. As the expected single-pulse duration is $\sim 10^{-10}$ sec, all the conventional diagnostic techniques (wide-band oscilloscoped with coaxial photodiodes, ordinary image converter streak cameras) fail to provide detailed information on the radiation pulse shape.

There are some indirect methods (Ref. 1-3) for evaluating the duration of the laser ultra-short pulses (USP). Unfortunately, these methods based upon the measurement of second and higher-order correlation functions are unable to give unambiguous results unless some assumptions are made concerning

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²⁾ All-Union Research Institute of Optical-Physical Measurements

³⁾ I.V. Kurchatov Institute of Atomic Energy

CHIKIN, S. Ya.

SPR 3 56019

17 MAY 72

UDC: 61:[301+1]:92 LENIN

V.I. LENIN ON SOCIOLOGICAL AND PHILOSOPHICAL VIEWS OF SOME PHYSICIANS
[Article by S. Ya. Chikin (Moscow): Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No. 3, 1972, pp 11-17]

In this article we should like to show how V. I. Lenin used the socio-hygienic data of physicians in his works and, in particular, how he rated the views of philosopher-physicians.

In one of his early works, "What Are 'Friends of the People' and How Do They Fight Against Social Democrats?" V. I. Lenin praised the book by Dr. Ye. M. Demant'yev entitled Fabrika, chto ona davet naseleniyu i chto ona u nego берет (The Factory, What It Gives the People and What It Takes From Them), stressing that the author, independently of Marx arrived at the extremely important conclusion, that "...mechanical production is inseparably related to the worker's total withdrawal from the land." This study "...proved once more," V. I. Lenin stressed, "that Russia is a capitalist nation, that in it, the link between the working man and the land is so weak and so illusory..." [1].

Thus, V. I. Lenin rated very highly the scientific research of Dr. Ye. M. Demant'yev who was one of the first to strike a perceptible blow against the narodniki [Russian populists] who tried to prove that there is no proletariat in Russia and that, presumably, the peasants could never be torn away from the land.

Nor were the works of the health inspector [doctor] of Perm' Province, I. I. Molleson left unnoticed: V. I. Lenin used them as the basis of his article, "Census of Handicraft Workers in Perm' Province," in which he condemned the capitalistic system for its inability to regulate the duration of a work day without detriment to the health of workers (Poln.Sobr.Soch. [Complete Collection of Works], Vol 2, p 393).

We can only express amazement at the fact that our leader was so well informed; he was acquainted not only with works published in Moscow and Rostov but also in relatively small towns. This is attested to by the pamphlet, Ob' yezhnyye zakona o shtrafakh (Explanation of the Law About Penalties), in which V. I. Lenin used the published works of Dr. P. A. Peskov, of Vladimir Province.

Cardiovascular Diseases

USSR

UDC 616.1-092

CHIKIN, S. YA.,

"Social Determinants of Cardiovascular Diseases"

Kazan', Kazanskiy Meditsinskiy Zhurnal, No 4, 1971, pp 1-7

Abstract: A survey of the trend in morbidity and mortality rates from cardiovascular diseases throughout the world shows that the differences between the various nations are due not to the biological characteristics of the peoples but to the prevailing socioeconomic conditions, awareness of health, general educational level, accessibility of medical care, age composition, and other social factors. As epidemics of infectious diseases in the developing countries are checked and the average life-span is lengthened, the number of persons suffering from cardiovascular diseases and deaths therefrom will steadily increase. This is almost certain to happen in economically advanced countries too, both capitalist and socialist, when many other diseases (e.g. various forms of cancer, endocrine disorders) are brought under control. Besides expanded research on heart diseases, the author urges that all sufferers be kept under regular clinical observation so that treatment can be instituted at the appropriate time, work arrangements made, exercise encouraged, and so forth.

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Acc. Nr.

AP0055632

Abstracting Service:

CHEMICAL ABST.

Ref. Code

4R 460

111850h Radiation polymerization of dioctylvinylphosphine oxide. Chikishv, Yu. G.; Snimshchikova, A. A.; Tsetlin, B. L. (Inst. Elementoorg. Soedin. Moscow, USSR). Vysokomol. Soedin., Ser. B 1970, 12(2), 149-50 (Russ). The radiation polymn. of the title monomer (I) in the melt, initiated by 65 megarads of γ -rays at a dose rate of 2000 rads/sec, was studied at 100°. The polymer obtained had a mol. wt. of 4.8×10^4 and was sol. in many org. solvents. Graft polymn. of I on Aerosil at a dose rate of 100 rads/sec gave 10% graft copolymer and 4% homopolymer.

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USSR

UDC 669.295.48(088.8)

SOLODISOV, D. K., CHIKODANOV, A. I., and VOROB'YEV, L. I.

"Method for Degreasing Titanium Alloy Scrap"

USSR Author's Certificate No 261095, filed 31 Jun 68, published 6 May 70
(from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G158 P)

Translation: A method is proposed for degreasing Ti-alloy scraps in smelting. To increase refining quality, the treatment is conducted in the spent melt of electrolytic magnesium baths. A method is described for distribution of the material incentives between shops and sectors. 2 tables. [Moscow Institute of Steel and Alloys]
A. Shmeleva

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USSR

UDC 669.721.472(088.8)

CHEPRASOV, I. M., SELETSOV, D. K., CHIKODANOV, A. I., BESTAUBAYEV, M. B., PEYSAKHOV, I. L., and BYKHOVER, L. N.

"Method of Purifying Waste Gases"

USSR Author's Certificate No. 267586, Filed 12/05/68, Published 14/07/70, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No.1 G171 P).

Translation: A method is suggested for purifying waste gases to remove Cl_2 and Cl_2 -containing products by transmitting the gases through inorganic reagents. In order to increase the degree of purification and simplify the process, the inorganic reagents used are wastes of Ti and its alloys in the form of fine sponge or chips. Example. The gases pumped from the cathode space of a magnesium electrolyzer, at 360° , containing 5-6 mg/l Cl_2 , are passed without preliminary drying to a layer of crushed, unheated titanium sponge. The sponge is heated by the gases themselves to $250-280^\circ$. All of the Cl_2 contained in the gases is trapped by the sponge, forming lower chlorides of Ti, which are then dechlorinated to produce $TiCl_4$.

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USSR

UDC: 51:801

CHIKOTDZE, G. B.

"General Scheme for Automating the Programming of Translation Algorithms"

Tr. In-t sistem upr. ANGruzSSR (Works of the Institute of Control Systems, Academy of Sciences of the Georgian SSR), 1971, 9, No 3, pp 61-77 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1146)

Translation: A scheme is proposed for automating the programming of translation algorithms as a system of commands of a specialized automaton. The automaton consists of a "memory" (variable matrices), and the "Automaton proper" (registers, decoder, operative mechanism). When the system of commands has been defined, we have a specific modification of the automaton. Possibilities of modeling the automaton on a general-purpose computer are considered. From T. Nikolayeva's abstract.

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USSR

UDC: 535.853.3:535.853.4

TARASOV, K. I., CHIKOV, K. N., Leningrad Institute of Precision Mechanics and Optics.

"A Method of Interference Amplitude Modulation of Radiation"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329409, Division G, filed 13 Jun 68, published 9 Feb 72, p 161

Translation: This Author's Certificate introduces a method of interference amplitude modulation of radiation. As a distinguishing feature of the patent, modulation quality is improved by splitting a parallel light beam into two coherent light beams propagating parallel to one another, directing the two beams against two sections located at the opposite edges of a diffraction grating, combining the beams reflected from the diffraction grating into a single light beam to produce interference, and rotating the diffraction grating with respect to an axis passing through one of its edges.

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USSR

UDC 581.132.04

CHIKOV, V. I., BULKA, M. Ye., and LOZOVAYA, V. V., Kazan' University and Tatar Agricultural Research Institute, Kazan'

"Effect of Insecticides on the Distribution of C^{14} in the Products of Photosynthesis"

Moscow, Fiziologiya Rasteniy, No 1, 1971, pp 190-193

Abstract: In pot experiments with 10- to 15-day-old bean (*Vicia faba*) plants (Russkiye chernyye variety), 4 organophosphorus insecticides slightly stimulated photosynthesis at low concentrations (0.1%) but inhibited it at high concentrations (0.5%). Treatment of the plants with the insecticides affected not only the intensity of photosynthesis but also the distribution of C^{14} in its products. Concentrations of 0.5 or below 0.1% suppressed the synthesis of sucrose while increasing the incorporation of the label into amino acids, organic phosphates, and organic acids. The nonspecific changes noted in the chemism of photosynthesis, like those brought about by high concentrations of ammonia, drought, organophosphorus defoliant, etc., apparently result from a deficiency of ATP caused by unfavorable factors.

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USSR

UDC 51

CHIKRIY, A. A.

"On Linear, Discrete Games of Quality With Two Terminal Sets"

V sb. Teoriya optimal'n. resheniy (Optimal Decision Theory -- Collection of Works), Kiev, 1972, pp 63-80 (from RZh-Matematika, No 3, Mar 73, Abstract No 3V502 by YA. KLYUSHIN)

Translation: In a discrete game of pursuit with discrimination of the evader, the pursuer (evader) wins if he moves the match onto a specified set $M_p(M_E)$ in a phase space. Otherwise, the game ends in a draw. The necessary and sufficient conditions are found which the starting point must satisfy in order for the game to end in favor of player P(E) or in a draw.

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USSR

UDC 911.3.616.981.452(574)

LAVROVSKIY, A. A., KUCHEROV, P. M., OPTYAKOVA, A. F., ROZHNIKOV, A. A.,
DEREVYANCHENKO, K. I., MATSUGA, V. G., BAKHTIGOZIN, I. A., ROZHNIKOV, A. A.,
CHIKRIZOV, F. D., KARUSHIN, P. A., and DUBYAGIN, P. S.

"Survival of Plague Bacteria During Interepizootic Years in the Sands Focus Area
Between the Volga and Ural River"

V sb. Probl. osobo opasn. infektsiy (Problems of Especially Dangerous In-
fections — collection of works) Vyp. 4 (14). Saratov, 1970, pp 94-104
(from RZh-Meditsinskaya Geografiya, Separate Issue, No 4, Abstract No
4.36.93)

Translation: A list is presented of reasons for the abrupt decrease in
epizootic activity in the sands plague focus between the Volga and Ural
Rivers. Plague bacteria, however, did not disappear from the biocenotic
focus system, as evidenced by the epizootics of 1962-1963 and 1966 and the
isolated cases of isolation of bacterial cultures from gerbils during de-
pressed phases of focus life. It becomes more and more evident that the
phenomenon of microfocality is an indispensable attribute of existence of
plague bacteria in the biocenosis. Materials on landscape adjustment of
particularly stable plague epizootics facilitate the definition, in the

1/2

LAVROVSKIY, A. A., et al., Probl. osobo opash. infektsiy (Problems of Especially Dangerous Infections -- collection of Works) Vyp. 4 (14). Saratov, 1970, pp 94-104 (from RZh-Meditsinskaya Geografiya, Separate Issue, No 4, Abstract No 4.36.93)

Volga-Ural sands area, of several more significant regions where the plague pathogen apparently survives even during depressed phases of focus activity.

1/1

2/2

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1/2 006 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--COMPLEXES OF BISMUTH WITH MALIC AND TARTARIC ACIDS -U-
AUTHOR--(02)-CHIKRYZOVA, E.G., VATAMAN, I.I. C
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 424-8
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MALIC ACID, TARTARIC ACID, BISMUTH COMPOUND, METAL COMPLEX
COMPOUND, SOLUTION ACIDITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1987/0774 STEP NO--UR/0078/70/015/002/0424/0428
CIRC ACCESSION NO--AP0104220
UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104220

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STUDY WAS MADE BY CLASSICAL POLAROGRAPHY AND OSCILLOGRAPHY. AT PH 4.5, K SUBH OF BI MALIC ACID COMPLEX WAS 4.3 TIMES 10 PRIME NEGATIVE17 AND 3.0 TIMES 10 PRIME NEGATIVE17, WHEN DETD. BY THE 1ST AND 2ND METHOD, RESP. ANALOGOUSLY, AT PH 3, THE K SUBH VALUES OF BI TARTARIC ACID COMPLEX WERE 2.5 TIMES 10 PRIME NEGATIVE8 AND 3 TIMES 10 PRIME NEGATIVE8, RESP.

UNCLASSIFIED

USSR

UDC 669-138+621.79

BOROK, B. A., SHEGGOLEVA, R. P., GOLUEVA, L. S., OSTROVSKAYA, E. N.,
CHIKUNOV, M. I., and KUNIS, M. I., Central Scientific Research Institute of
Ferrous Metallurgy imeni I. P. Bardin

"Production Technology of Nickel-Base Brazing Alloys in Powder Form"

Kiev, Poroshkovaya metallurgiya, No 2, May 72, pp 82-88

Abstract: The objective of the study was to develop an optimum production technology for Ni-base alloys in powder form for brazing structures from thin-sheet high-alloy steels. The test materials were powders of PKh12N75S8R-grade Ni-Cr-Si-Fe-B brazing alloy and MA--a mixture of 85% of PKh12N75S8R with 15% molybdenum. PKh12N75S8R was successfully used to braze OKh18N10, 1Kh18N1, and Kh25N16G7AR high-alloy steels. The brazing temperature was 1180°C and the secondary melting (unsoldering) temperature--1080°C. Addition of molybdenum (15%) to Kh25N16G7S8R was found to raise the unsoldering temperature by 130°C and ensure a joint tensile strength of 30 kg/mm². (1 illustration, 7 tables, 6 bibliographic references)

1/1

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USSR

UDC 620.193.918

ZAMIRYAKIN, L. K., and CHIKUNOV, V. K., Ural Polytechnical Institute imeni Kirov

"Device for Testing Metals for Their Tendency Toward Stress Corrosion Cracking at High Temperatures and Pressures"

Moscow, Zavodskaya Laboratoriya, Vol XXXVI, No 9, 1970, pp 1134-1136

Abstract: This article contains a description of the UPI-IV autoclave for testing metals and welded joints for their tendency toward stress corrosion cracking at high temperatures and pressures. The new device permits achievement of correspondence between industrial and laboratory tests and eliminates the problem of Y-shaped samples used in the UPI-III which are unsuitable for testing welded joints.

The operation of the new autoclave is discussed in detail. As a result of using a bellows loading unit, the UPI-IV permits the creation of constant or increasing stresses in the samples with or without application of additional periodic stresses. Sixteen samples can be tested simultaneously, including butt welded joints under various stresses, temperatures, and
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USSR

ZAMIRYAKIN, L. K., and CHIKUNOV, V. K., Zavodskaya Laboratoriya, Vol XXXVI, No 9, 1970, pp 1134-1136

pressures of an aggressive medium. All parameters can be varied independently. The results of investigating the strength of welded joints of OKh18N10T steel at various temperatures in an alkaline solution correspond to the previously published data and indicate high reliability of the new device.

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- 12 -

USSR

UDC: 532.526

CHIKURIN, A. K.

"On the Problem of Development of a Turbulent Boundary Layer With Positive Longitudinal Pressure Gradient"

Tr. Kuybyshev. aviats. in-t (Works of the Kuybyshev Aviation Institute), 1971, vyp. 35, pp 76-88 (from RZh-Mekhanika, No 9, Sep 72, Abstract No 9B828)

Translation: The author considers a method of calculating a plane turbulent boundary layer in an incompressible fluid based on the Prandtl mixing path formula and approximating the square root of tangential stress by a third degree polynomial of the transverse coordinate. The mixing path length is represented in the form of the product of linear and exponential functions of the transverse coordinate. The dependence of the coefficient of surface friction on the thickness of the boundary layer (drag law) is found by equating the velocities in the turbulent core and in the viscous sublayer on the sublayer boundary. As a result of comparison of the calculations with experimental data of Schubauer and Klebanov, Gruschwitz and Schulz-Grunoff, the constants appearing in the formula for the

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USSR

CHIKURIN, A. K., Tr. Kuybyshev. aviats. in-t, 1971, vyp. 35, pp 76-88

mixing path and the constant which characterizes the thickness of the viscous sublayer are determined as functions of the longitudinal pressure gradient. The properties of the turbulent boundary layer in a detached cross section are studied. Bibliography of 10 titles. A. V. Kolesnikov.

2/2

USSR

UDC: 533.697

CHIKURIN, A. K.

"Experimental Investigation of Radial Diffuser Aerodynamic Characteristics"

Materialy nauchno-tekhn. konferentsii. Kuybyshevsk. aviats. in-t
(Materials of the Scientific-Technical Conference, Kuybyshev Aviation Institute) 1970, pp 79-80 (from RZh-Mekhanika, No. 8, Aug 70, Abstract No. 8B496)

Translation: The basic schematic of the experimental device, the experimental distribution curve for the static pressure along the diffuser axis, and brief conclusions from the measurement results are given. L. G. Naumova

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USSR

UDC 547.63 + 547.562.4'562.1

GITIS, S. S., SEINA, Z. N., KAMINSKAYA, E. G., IVANOVA, V. M.,
BELOBRAGINA, V. V., SOSONKIN, I. M., and KAMINSKIY, A. YA.,
VNIPIIM [All-Union Scientific Research and Planning Institute of
(unknown; possibly Monomers)], Tula, and CHIKURINA, L. V., VNIIV
[All-Union Scientific Research Institute of Synthetic Fibers]

"p,p'-Bis-(carboxyphenylsulfonyl)-diphenyl Oxide and Some of Its
Derivatives -- Monomers for the Production of Thermostable
Fibers"

Moscow, Khimicheskiye Volokna, No 1, 1971, pp 45-47

Abstract: The article suggests the synthesis of new monomers,
viz. derivatives of p,p'-bis-(carboxyphenylsulfonyl)-diphenyl
oxide, for the production of thermostable polymer materials. A
study of the first stage of the synthesis -- tosylation of di-
phenyl ether -- showed that the process yields two principal
products whose elementary composition corresponds to the general
formula $\text{CH}_3\text{--Ar--SO}_2\text{--Ar--O--Ar--SO}_2\text{--Ar--CH}_3$, as well as a
third substance whose composition corresponds to the composition

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USSR

GITIS, S. S., et al., Khimicheskiye Volokna, No 1, 1971, pp 45-47

of the monotosylation product $\text{Ar}-\text{O}-\text{Ar}-\text{SO}_2-\text{Ar}-\text{CH}_3$. The structure of the synthesized products was confirmed by IR and electron spectroscopy, as well as polarography. Fibers based on the resultant monomers are strong and elastic.

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USSR

UDC 621.317.49:531.71

CHIKUROV, N. G.

"Magnetomodulation Transducer for Measuring Linear Displacements"

Moscow, Izmeritel'naya Tekhnika, No 9, Sep 71, pp 19-20

Abstract: An induction indented DPK-01 transducer with a modulated magnetic flux for linear displacement measurements, developed at the Experimental Scientific Research Institute of Metal Cutting Machine Tools is described in detail. Its operation principle is based on the variation of magnetic conductivity of an air gap between two indented surfaces, with a reciprocal disposition of teeth. It is intended for measuring large linear displacements in metal cutting machines, and consists of a rectilinear base of magnetic material, provided with teeth along its length and indented magnetic cores, displaceable along the base, ensuring the air gap magnetic conductivity variation. Contrary to known induction transducers the magnetizing of the cores is achieved here by dc. The utilization of a constant magnetic flux increases the transducer accuracy because the errors due to eddy currents and hysteresis are excluded. It is provided with a transistorized negative feedback circuit. Tests showed that the described transducer has satis-
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USSR

CHIKUROV, N. G., Izmeritel'naya Tekhnika, No 9, Sep 71, pp 19-20

factory metrological characteristics, and that the transducer output signal variation did not exceed 0.04% of the output signal general level, what at tooth pitch $T=1$ mm corresponds approximately to displacement. Schematic diagram of the transducer and the negative feedback circuit are presented.

2/2

Materials

USSR

UDC 535.317.1

KAKICHASHVILI, SH. D., CHIKVAIDZE, D.V., DZHUGELI, B. P.

"Large-Sized Holograms On Film Photomaterial"

Tekhnika kino i televideniya, No 4, Apr 1972, pp 9-11

Abstract: A technique developed by the authors for obtaining and showing large-sized film 3-dimensional holograms is described. Flat (50 x 100 cm) and circular (19-cm high and 60-cm in diameter) holograms of 3-dimensional objects were obtained by means of a LG-75 He-Ne laser in a single-mode regime with the use of a two-beam scheme. Professor A. V. Borin and N. S. Gafurova submitted the high-quality holographic photomaterials. Professor B. K. Balavadze made it possible to conduct the experiments in the Division Of Gravimetry, Institute Of Geophysics, Academy Of Sciences, Georgian SSR. 4 fig. 6 ref.

USSR

UDC 681.325.54

CHAVCHANIDZE, V. V., KAKICHASHVILI, Sh. D., DZHAGAROV, Yu. A., ~~CHIKVAIDZE, D. V.~~, LESELIDZE, D. V., CHRAKADZE, M. I., TEVDORASHVILI, K. G., and LOBZHANIDZE, V. V.

"Optical Signal Adder"

USSR Author's Certificate No 269606, filed 27 Jan 69, published 28 Jul 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6 B185 P)

Translation: An optical signal adder for signals given in the form of pictures of rectangular shape is introduced. The adder contains an optical interferometer. It is distinguished by the fact that in order to improve the light efficiency and insure addition with respect to any modulus, the expanding system for conversion of the light pictures to a quadratic matrix is located at its input, after which along the channels corresponding to the components there are a Dove prism and a system of rhombic prisms with sequentially decreasing height the number of which per unit is less than the summation modulus. At the output of the indicated channels there is an interference mixer followed by the compressing system.

1/1

- 75 -

Construction

USSR

UDC: 539.4:624.012

CHIKVAIDZE, R. D.

"Investigation of the Work of Bendable Reinforced Concrete Elements Subjected to an Isolated Impact Load"

Tr. Gruz. politekhn. in-t (Works of the Georgian Polytechnical Institute), 1970, No 5(140), pp 124-132 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7V1004)

Translation: Experimental and control specimens measuring 9 x 14 x 160 cm were made. The control specimens were tested for static loading. The concrete was grade M200. The beams were reinforced with hot-rolled steel class A-1. Five series of specimens were made in all. Each series consisted of six beams, four of which were tested for impact loading, and two for static loading. The specimens of different series differ from one another in the percent of reinforcement within limits of 0.52-2.8, and in slight deviations in the strength of the concrete. Dynamic tests were done on a hammer with a drop weight. The beams were fractured by a single blow. Electric strain gauges were used for measuring deformations.

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CHIKVAIDZE, R. D., Tr. Gruz. politekhn. in-t, 1970, No 5(140), pp 124-132

Flexures were measured by cantilever dynamic flexometers. Dial gauges were used in testing the control specimens for static bending. All beams were tested in the pure bending mode.

It was found as a result of the experimental research that: 1) the dynamic carrying capacity of bendable elements subjected to impact loading exceeds the carrying capacity of the elements by a factor of approximately 1.5; 2) the rigidity of the elements under an isolated impact load exceeds the short-term rigidity of these same elements under a static load; 3) the rectangular stress curve with respect to the compressed zone of the cross section assumed in the strength calculations does not correspond to the actual stress distribution in the concrete; a triangular stress curve in the compressed zone of the cross section gives the best agreement with the experimental data. Z. L. Gil'gur.

USSR

UDC 612.821

AYVAZASHVILI, I. M., IORDANISHVILI, G. S. and CHIKVAIDZE, V. M., Institute of Physiology, Academy of Sciences, Georgian SSR, Tbilisi

"On the Role of Biogenic Amines in the Mechanism of Memory"

Moscow, Doklady Akademii Nauk SSSR, Vol 212, No 6, 1973, pp 1479-1481

Abstract: The influence of phelazine on the psychonervous and conditioned-reflex memory of rats was investigated. Psychonervous memory was correlated with retention of associations between a dark chamber and pain, while conditioned-reflex memory used associations between sound and pain. It was observed that phelazine introduced before reaction formation greatly reduced psychonervous memory, particularly if administered for three days before, while if given after formation it had no effect. Conditioned-reflex memory was unchanged. These results are said to be due to the inhibition of mono-amine oxidases and the accumulation of serotonin. This is confirmed by the observation that parachlorophenylalanine administration somewhat improves memory. The experiments are considered to show the different chemical natures of psychonervous and conditioned-reflex memories and the special role of serotonin in psychonervous memory.

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USSR

UDC 612-019

CHIKVAIDZE, V. N., IORDANISHVILI, G. S., and SOBCHINSKAYA, N. M., Institute of Physiology, Georgian Academy of Sciences

"Effect of Neurotropic Agents on Monoamine Oxidase and 5-Hydroxytryptophan Carboxylase Activities in Brain Tissue"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, No 1, 1973, pp 201-203

Abstract: In acute experiments on rats, chlorpromazine, melipramine, nardil, reserpine, haloperidol, and iprazid inhibited monoamine oxidase activity in brain tissue in varying degrees, while benactizine slightly stimulated it. The results were the same in chronic experiments, but the inhibitory effect of the neurotropic agents was more pronounced. In both acute and chronic experiments, chlorpromazine and nardil strongly inhibited 5-hydroxytryptophane carboxylase activity, while reserpine stimulated it. Benactizine and melipramine inhibited the enzyme in chronic and acute experiments, respectively. Haloperidol had no effect. Thus, the drugs tested have a selective effect on monoamine oxidase and 5-hydroxytryptophane carboxylase activities in brain tissue. Some inhibit both enzymes; others stimulate one and inhibit the other.

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USSR

UDC 51

CHILAP, A. YA.

"A Theorem for Butterfly Games"

V sb. Veroyatnostn. metody i kibernet. (Probability Methods and Cybernetics — collection of works), vyp. 9, Kazan', Kazan' University, 1971, pp 99-107 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V465)

Translation: The theorem is proved for the existence and uniqueness of the solution of a butterfly game in a rectangle $[a, b] \times [c, d]$ of the type

$$F = (\alpha I_a, \beta I_t, \gamma I_b, f_{a,t}), \quad G = (\chi I_d, \mu I_d, g_{a,t}).$$

where $a < t < d$ (and it is analogous for $c < t < b$).

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USSR

UDC 547.587.21

KUKALENKO, S. S., GRACHEVA, N. A., CHILIKIN, L. G.

"Chemistry of Organic Pesticides. III. Synthesis of 4-Phthalimidobutanoic Acid"

Zhurnal Organicheskoi Khimii, vol 9, No 7, July 1973, pp 1401-1404

Abstract: 4-Phthalalimidobutanoic acid was made by reacting gamma-butyrolactone with dry potassium phthalimide at 180-200°C (84% yield). Cis-Tetrahydrophthalimidobutanoic acid was obtained by a similar procedure. A number of esters, acid chlorides, amides, and anilides of the first compound were prepared and their properties determined. Of the products tested, the most active fungicide (against tomato phytoflora) was 4-phthalimidobutanoic monoethylamide.

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USSR

UDC 666.972:621.317.18.001.5(088.8)

CHILINGARISHVILI, G. I., BEDUKADZE, G. V.

"Deep Ultrasonic Sensor"

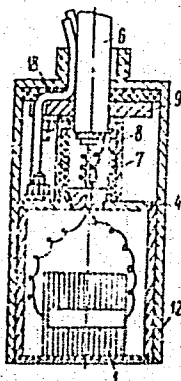
USSR Author's Certificate No 260271, filed 7 Aug 68, published 24 Apr 70
(from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D207)

Translation: A deep ultrasonic sensor for studying the strength characteristics of concrete inside reinforced concrete structural elements including a housing with a membrane 4 and an acoustic converter 1 (see the figure) has been patented. It is distinguished by the fact that an attachment clamping a membrane is installed in the cavity of the housing. The attachment is executed with a directional yoke 7 and with a compressed spring 8 included inside it supported on the lower end by a metal disk 9. The sensor is placed in a metal case 12; on the housing side the end of the case is open, and on the other end, there is a threaded stud for screwing on the sensor holder. The force of the spring 8 is received by two chromium-nickel wires attached on one end to the membrane 4 and on the other end to the disk 9. The two wires 18 from the disk 9 in the membrane 4 are lead out with a coaxial cable 6. The proposed design of the sensor insures stability and reliability of readings. There is 1 illustration.

1/2

USSR

CHILINGARISHVILI, G. I., et al., USSR Author's Certificate No 260271, filed
7 Aug 68, published 24 Apr 70



2/2

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CHILINGIRIS, V. I.

JPRS 60298

17 October 1973

(5)

UDC 591.185.5159.537

PHYSIOLOGY OF THE SONAR SYSTEM IN BLACK SEA DOLPHINS

Article by E. Sh. Artyukhin, V. A. Voronov, Yu. V. Lyubchenko, M. P. Ivanov, D. L. Ogorodnikov, B. F. Serpukov, and V. I. Chilingiris, Leningrad, *Zhurnal Evolyutsionnoy Biologii i Fizologii*, Russian, No 4, 1973, sub-
mitted 31 January 1973, pp 416-422

Black Sea dolphins (*Tursiops truncatus* and *Phocaena phocaenoides*) were found to be capable of detecting metal spheres 5 to 150 mm in diameter and cylinders of the same diameter and height from a distance of over 24 m. The spheres and cylinders could be differentiated from 17.0 and 18.5 m, respectively. The dolphin's echo-locator adapted in the course of location, i.e., the locating signals adjusted to the parameters of the objects located. The directivity of emission varied widely. The directivity pattern was scanned with no change in the position of the animal's head. The directivity pattern of reception in the horizontal and vertical planes narrowed with increasing frequency and decreasing duration of the signal. When the reception pattern is scanned by turning the head, there evidently takes place a spatial-frequency filtering that ensures the directed and coordinated reception of the echosignal.

Introduction

The nature of the propagation of sound waves in water creates favorable conditions for the use of echolocation by aquatic organisms. Echo-location has reached the highest peak of development in dolphins [1-7] whose enormous and rather highly developed brain enables them to control locating sound pulses and to make a complex analysis of echosignals. Accordingly, knowledge of the physiology of the dolphin sonar system is of value not only from the general biological standpoint but also for bionics problems.

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[1 - USSR - C]

1/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--DEPENDENCE OF THE ACTIVITY AND STABILITY OF A PALLADIUM CATALYST
APPLIED TO POLY(VINYL ALCOHOL) (SUBSTRATE) ON PREPARATION CONDITIONS -U-
AUTHOR--(02)-TYURENKOVA, U.A., CHIMAROVA, L.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 88-92
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--POLYVINYL ALCOHOL, ELECTROLYTIC REDUCTION, PALLADIUM COMPOUND,
ETHANOL, HYDROGENATION, CATALYST ACTIVITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1995/1401 STEP NO--UR/0076/70/044/001/0038/0092
CIRC ACCESSION NO--AP0116848
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116848

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CATALYSTS WERE PREPD. BY DISSOLVING 1 G POLY(VINYL ALC.) IN 45 ML WATER, 50PERCENT GLYCEROL SOLN., DIETHYLENE GLYCOL, OR ETOH CONTG. 10.4 MILLIMOLE PDCL SUB2-L. AND ELECTROLYTICALLY REDUCING PDCL SUB2 TO PD, WHICH IS PPTD. THE MOST ACTIVE CATALYST WAS OBTAINED WHEN 96PERCENT ETOH WAS USED. THE INCREASE OF ELECTROLYTIC REDN. TEMP. FROM SIMILIAR TO 20DEGREES TO 40DEGREES INCREASED THE CATALYST ACTIVITY AS JUDGED BY THE HYDROGENATION OF 4 CONSECUTIVE PORTIONS OF ME SUB2 C(OH)C:CH OVER THE CATALYST. REDN. TEMPS. GREATER THAN 40DEGREES DO NOT INCREASE THE CATALYST ACTIVITY. ALL THE CATALYSTS RETAINED THEIR ACTIVITY AFTER STORAGE FOR SIMILIAR TO 2 MONTHS. FACILITY: KURGAN. SEL'SKOKHOZ. INST., KURGAN, USSR.

UNCLASSIFIED

USSR

UDC 577.4

CHIMEV, K. N.

"Separable Pairs of Functions of the Same Class"

Godishn. Vissh. tekhn. uchebni zaved. Mat. (Annual of the Technical Institutions of Higher Learning. Mathematics), 1970 (1972), Vol 6, No 1, pp 25-38 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V279)

Translation: A study was made of the functions of P_k which can be represented in the form

$$f(x_1, \dots, x_n) = \sum_{j=1}^p x_1^{m_j} S_{m_j}(x_2, \dots, x_{r+1}) + \\ + S(x_2, \dots, x_n) + T(x_2, \dots, x_{r+1}), \quad (1) \\ (p \leq k; 1 \leq r \leq n-2; m_j \in \{0, 1, \dots, k-1\} \text{ for } j=1, \dots, p),$$

where the sum and the product are found mod k and

$$x_i^j = \begin{cases} j, & \text{if } x_i = j \\ 0, & \text{if } x_i \neq j. \end{cases}$$

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USSR

UDC 577.4

CHIMEV, K. N.

"Dependence of the Functions of K-Valued Logic on Their Arguments"

Godishn. Vissh. tekhn. uchebni zaved. Mat. (Annual of the Technical Institutions of Higher Learning. Mathematics), 1970 (1972), Vol 6, No 2, pp 53-62
(from RZh-Kibernetika, No 12, Abstract No 12V278)

Translation: The basic results of this paper consists in the following: if a function of multivalued logic essentially depends on at least two variables, then it has no less than two strongly essential variables.

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USSR

UDC 577.4

CHIMEV, K. N.

"Dependence of the Functions of K-Valued Logic on Their Arguments"

Godishn. Vissh. tekhn. uchebni zaved. Mat. (Annual of the Technical Institutions of Higher Learning. Mathematics), 1970 (1972), Vol 6, No 2, pp 53-62
(from RZh-Kibernetika, No 12, Abstract No 12V278)

Translation: The basic results of this paper consists in the following: if a function of multivalued logic essentially depends on at least two variables, then it has no less than two strongly essential variables.

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USSR

UDC 577.4

KUTIRKOV, G. A., CHIMEV, K. N.

"Some Discrete Functions"

Godishn. Vissh. tekhn. uchebny zaved. Mat. (Annual of the Technical Institutions of Higher Learning. Mathematics), 1970(1972, Vol 6, No 2, pp 63-72 (from RZh-Kibernetika, No 12, Abstract No 12V277)

Translation: A study is made of the problems of the essential dependence of certain functions of multivalued logic on their arguments.

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CHIMIREV, V.K.

5985 59868

6-73

VII-3. RELATION BETWEEN THE NATURE OF CLEAVAGE AND THE DEGREE OF STRESS OF SINGLE CRYSTALS OF PROUSTITE

[Article by A. A. Godovikov, M. G. Serbulenko, B. G. Kennaiev, V. K. Chimirev, Novosibirsk, 111 Stremel'noye Proizvedeniye, Nostil'skaya Polun-
Evodnikovskaya Krasnaya Ploshchad, Krasnodar, 12-17 June 1972, p. 103]

Ag₃As₃ proustite is a compound with a quite clear rhombohedral cleavage — (111). The study of the cleavage of single crystals known by the Bridgman-Strohman method demonstrated that the degree of exhibition of cleavage in them differs — from clear to perfect. The comparative study of the cleavage surfaces using a scanning electron microscope revealed significant differences in its surface in different crystals. The optical (conoscopic) study of such crystals permitted establishment of the fact that they are disturbed by the degree of stress. Optically uniaxial crystals were characterized by perfect cleavage. The crystals with strong internal stresses perfect rhombohedral cleavage.

The surface of the cleavage can obviously be used for a fast qualitative estimate of other single crystals characterized in the untreated state by insufficiently perfect cleavage. The same characteristic can also be applied to crystals of many natural minerals, the degree of perfection of the cleavage of which will be determined by the thermal history of the minerals themselves and the enclosing minerals.

Acc. Nr:

AP0046553

Ref. Code: UR 0216

PRIMARY SOURCE: Izvestiya Akademii Nauk SSSR, Seriya
Biologicheskaya, 1970, Nr 1, pp 38-42

Rybakov, N. I.; Guberniyev, M. A.; Chimirov, O. B.;
Drozhennikov, V. A.; Aniskin, Ye. D.; Kolobov, A. V.;
Kozlov, V. A.

INFLUENCE OF SOME RADIOPROTECTORS ON THE PROCESSES CONNECTED
WITH LYSOGENIZATION OF THE BACTERIA AND INDUCTION
OF INTERCELLULAR λ -EXONUCLEASE

The influence of the radioprotector finam on the processes of lysogenization of the bacteria with the λ phage and induction of λ -exonuclease was studied in the course of experiments with E. coli SF-14 (λ -try-S^r).

It was shown that this preparation tangibly suppresses the frequency of E. coli lysogenization and oppresses synthesis of the induced λ -exonuclease.

The results concerning activity of this enzyme definitely correlate with the data related to the influence of finam on the lysogenization process of the same bacterial strain.

REEL/FRA
19781816

USSR

UDC 576.8

C
RYBAKOV, N. I., GUBERNIYEV, M. A., CHIMIROV, O. B., DROZHENNIKOV, V. A.,
KOLOBOV, A. V., ANISKIN, Ye. D., and KOZLOV, V. A., Institute of Experimental
Biology, Academy of Medical Sciences USSR

"The Effect of Some Radioprotectors on Processes Associated With Lysogeniza-
tion of Bacteria and Induction of Intracellular λ -Exonuclease"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 1, 1970,
pp 38-42

Abstract: The radioprotector finam (an aminothiols) inhibited the frequency of
lysogenization of E. coli SF-14 (λ -try^{-S^r}) by λ -phage and inhibited the
synthesis of induced λ -exonuclease at different times after infection. The
effect was most pronounced in early stages of infection. After thirty minutes
the inhibiting effect of the radioprotector on λ -exonuclease activity de-
creased sharply. Results of determination of the activity of λ -exonuclease
are consistent with data on the effect of finam on lysogenization of the same
bacterial strain. This suggests that enzyme systems play a part in the de-
velopment of lysogenicity in bacterial cells. These enzymes may be DNases of
the endonuclease type.

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1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--USE OF INJECTORS FOR IMMUNIZATION AGAINST SMALLPOX. COMMUNICATION
II: IMMUNOLOGIC RESPONSE TO INTRADERMAL INOCULATION OF SMALLPOX VACCINE
AUTHOR--(05)--AKATOVASHELUKHINA, E.M., FEDOROV, V.V., CHIMISHKYAN, K.L.,
GURVICH, E.B., NEKRASOV, I.L.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 3, PP 313-316
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--SMALLPOX, IMMUNIZATION, ANTIBODY, VACCINE
CENTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1845 STEP NO--UR/0402/70/000/003/0313/0316
CIRC ACCESSION NO--AP0125456
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125456

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER PRESENTS THE RESULTS OF USE OF JET INJECTORS FOR IMMUNIZATION AGAINST SMALLPOX EXPERIMENTALLY IN ANIMALS AND IN A SMALL GROUP OF VOLUNTEERS. IMMUNOLOGIC RESPONSE WAS STUDIED BY DETERMINATION OF HUMORAL ANTIBODY IN THE BLOODS OF VACCINATED PEOPLE AND ANIMALS. AUTOMATIC MULTIDOSE INJECTORS OF NATIONAL AND AMERICAN MAKE WERE USED FOR IMMUNIZATION. THE METHOD OF INOCULATION WAS FOUND TO BE SAFE AND TO PRODUCE ANTIBODY RESPONSE IN SERA OF IMMUNIZED ANIMALS. IMMUNIZATION WITH JET INJECTOR PROTECTED RABBITS FROM DEATH AFTER INTRACEREBRAL INJECTION OF 1000 LD SUB50 OF NEUROVACCINE. A SIGNIFICANT RISE OF TITERS OF ANTIHEMAGGLUTININS AND VIRUS NEUTRALIZING ANTIBODY WAS DEMONSTRATED IN SERA OF VACCINATED HUMAN VOLUNTEERS. FACILITY: MUSKOVSKIY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT VIRUSNYKH PREPARATOV.

UNCLASSIFIED

USSR

UDC 621.371.1

CHIMITDORZHIYEV, N. G., TSYDYPOV, Ch. Ts.

"Sequential Microwave Diffraction on Several Obstacles with Diffractors"

Tr. Buryatsk. in-ta estestv. nauk. Buryatsk. fil. Sib. otd. AN SSSR (Works of Buryatsk Institute of Natural Sciences. Buryatsk Branch of the Siberian Division of the USSR Academy of Sciences), 1970, vyp. 6, pp 3-14 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A273)

Translation: The problem of diffraction of a spherical electromagnetic wave on two obstacles with auxiliary diffracting systems installed above the screening obstacles is solved in the Kirchhoff approximation. The diffracting systems consist of an arbitrary number -- n -- of rectangular screens forming a diffraction grating. An expression is found for the diffraction field which depends on the dimensions of the diffractor and the geometric parameters of the radio route. A calculational formula is presented for determining the amount of gain arising from the diffractors. From the presented formula, the optimal parameters of the elements of the diffraction system are determined. There is one illustration and a seven-entry bibliography.

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1/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--A METHOD FOR DETERMINATION OF SMALLPOX VACCINE IMMUNOGENICITY IN
WHITE MICE -U-
AUTHOR--(03)-CHIMISHKYAN, K.L., SVETMOLDAVSKAYA, I.A., MATSEVICH, G.R.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 2, PP 244-246
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--SMALLPOX, VACCINE, WHITE MOUSE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1990/0742 STEP NO--UR/0402/70/000/002/0244/0246
CIRC ACCESSION NO--AP0108948
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0108948

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER PRESENTS THE RESULTS OF USING THE SO CALLED "VACCINATION DISEASE" IN IRRADIATED WHITE MICE FOR DETERMINATION OF IMMUNOGENICITY OF SMALLPOX VACCINES. BY THIS METHOD, DIFFERENCES IN IMMUNOGENICITY OF VACCINES PREPARED FROM DIFFERENT STRAINS COULD BE DETECTED. THE METHOD MAY BE USED AS AN ADDITIONAL CRITERION FOR EVALUATION OF IMMUNOGENICITY OF SMALLPOX VACCINE.

UNCLASSIFIED

Acc. Nr:

AP0044691

Ref. Code: UR 0463

PRIMARY SOURCE: Molekulyarnaya Biologiya, 1970, Vol 4, Nr 1,
pp 45-50

THE CHEMICAL MODIFICATION OF GUANYLYL-(3'→5')-CYTIDINE
WITH N-CYCLOHEXYL, N'-β-(4-METHYLMORPHOLINIUM)-
ETHYLCARBODIIMIDE.

THE EFFECT OF THE MODIFICATION UPON THE STABILITY
OF PHOSPHODIESTER BOND TO GUANYLO-RIBONUCLEASE
OF ACTINOMYCES

A. S. GIRSHOVICH, M. A. GRACHEV and T. A. CHIMITOVA

Institute of Organic Chemistry, Siberian Branch of the Academy of Sciences, USSR,
Novosibirsk

Guanylyl-(3'→5')-cytidine has been modified with ¹⁴C-CME-carbodiimide at the
guanosine residue and the reaction product $\bar{G}pC$ was isolated. Guanylo-ribonuclease from
Actinomyces does not cleave the phosphodiester bond in $\bar{G}pC$.

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REEL/FRAME
19771425

02 pc

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--THE REACTION OF N, CYCLOHEXYL, N', BETA, (4, METHYLMORPHOLINIUM)
ETHYLCARBODIIMIDE WITH GUANYLYL (3' TO 5') CYTIDINE -U-
AUTHOR-(04)-GIRSHOVICH, A.S., GRACHEV, M.A., KNORRE, D.G., CHIMITOVA, T.A.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR, NO 2, SERIYA
KHIMICHESKIKH NAUK, 1970, NR 1, PP 97-102
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GUANIDINE, IMIDE, MORPHOLINE, HETEROCYCLIC NITROGEN COMPOUND,
REACTION KINETICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1984/1601

STEP NO--UR/0289/70/000/000/0097/0102

CIRC ACCESSION NO--AP0100211

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0100211
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION KINETICS HAS BEEN
STUDIED OF GUANOSINE RESIDUE IN GPC WITH CME CARBODIIMIDE, AND THE
TEMPERATURE DEPENDENCE OF THE IONISATION OF THE SAME RESIDUE IN ALKALINE
MEDIUM DETERMINED. THE REACTIVITY OF GUANOSINE RESIDUE TO GPC DOES NOT
DIFFER CONSIDERABLY FROM THAT OF FREE GUANOSINE.

UNCLASSIFIED

Acc. Nr: **AP0106260**

Ref. Code: **UR 0307**

PRIMARY SOURCE: Vestnik Leningradskogo Universiteta, No 6 ,
Geologiya, Geografiya, 1970, Nr 1 , pp 126-139

L. Ye. Smirnov, A. G. Chimshidova

The elements of mathematical logic as applied to interpretation of airphotos

The paper is dedicated to the logic problems in the interpretation of airphotos and to do logic sums with an algebraic logic. An example of automat-trainer for programmed instruction in interpret of aerial photos are given.

MK

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REEL/FRA
19881504

4

USSR

CHINAKAL, N., Director, Institute of Mining, Siberian Department, Academy of Sciences USSR, Corresponding Member, Academy of Sciences USSR, KAZNACHEYEV, V., Corresponding Member, Academy of Medical Sciences USSR, and BENEVOLENSKAYA, N., Candidate of Medical Sciences USSR

"The Physician as a Coauthor With the Designer"

Moscow, Trud, 15 Jan 71, p 2

Abstract: Machine and equipment designers, as well as members of the medical profession are criticized for their failure to take into consideration the physical, physiological, and psychological effects of new equipment on the human organism. At present there is no faculty in any of the Soviet educational establishments in which a course on the physiology of work is offered. As a result, when new machines leave the assembly line they carry with them a threat to the health and even the life of the worker. The USSR is not alone in this respect, since few foreign countries have established criteria for the safety of machine workers. Some standards have been established with respect to the maximum tolerance of such factors as dust, noise, vibration, and chilling of the organism by air currents generated by machines. Little has been done to determine the effect of a combination

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USSR

CHINAKAL, N., et al, Trud, 15 Jan 71, p 2

of these factors on the worker, however. An important document calling for the classification of all types of work on the basis of its exertion, harm, and danger to the workers has been published by the Institute of Labor Hygiene and Occupational Diseases, Academy of Sciences USSR. This is only a beginning, and other research institutes, particularly those which are subordinate to the Academy of Sciences USSR, should be drawn into this work. Greater attention should also be devoted to the payment of awards for the development of safe and dependable machines. Special institutes of labor hygiene should be organized with the authority to reject or permit the serial production of machines on the basis of their safety and dependability. In order to limit the time of contact of a worker with vibration caused by drilling equipment, some enterprises such as the Combine Severonikel have adopted a rotation system whereby trained workers within a brigade alternate each month for work with the drilling equipment.

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USSR

UDC 531.385

LEBEDEV, V. V. and CHINAYEV, P. I., Kiev Higher Engineering-Aviation Military Academy of the Air Defense Forces

"Moments Acting on a Spherical Rotor in a Magnetic Suspension"

Leningrad, Priborostroyeniye, Vol 16, No 5, 1973, pp 85-88

Abstract: An ideal sphere, uniform and isotropic in density, geometry and magnetic properties, rotating in a vacuum under magnetic suspension, could provide a loss-free rotor. For real rotors, the anisotropies of composition can be represented geometrically, replacing the sphere with an ellipsoid. Polarity reversal, rotational hysteresis and eddy current losses are represented by a constant lag angle of rotor magnetization vector components. The moment acting on the rotor can then be expressed as a function of the magnetic permeability of the vacuum, the volume of the spherical rotor, the magnetization vector and the vector of direction of the external field. In addition to the braking moment due to losses in the rotor material, there are two orthogonal precession moments, a tangent moment determined primarily by deviations from the perfect spherical form and a radial moment due to losses in the rotor material. The precession moments are due to the interaction of the external field component directed along the axis of rotation of the rotor and the magnetization component

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USSR

LEBEDEV, V. V. and CHINAYEV, P. I., Priborostroyeniye, Vol 16, No 5, 1973, pp 85-88

perpendicular to the axis of rotation and opposite to the corresponding component of the external field. If one of these constituents coincides with the projection of the field direction vector on the equatorial plane, a spiral precession results, which brings the vector of rotation in line with the external field. Since losses in the material are usually quite significant, the precession appears close to radial. If there are no losses in the material, a moment perpendicular to the planes of the external field and of rotation leads to an undamped precession with an angular velocity depending on the geometric aberration of the rotor.

The braking moment of a given instrument can be determined by letting it run free in a vacuum, while the precessional trajectory can be determined by observation, thus making it possible to determine which factor (spherical error or dissipation) is dominant, and to determine quantitatively the rotor quality, the isotropic quality of its material and the amount of loss.

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- 125 -

CHINAYEV, P.I.

Gyroscopes

Gyroscopes

SD: JPRS 59740
8 A6 73

CAK

MOMENTS ACTING ON A SPHERICAL ROTOR IN A MAGNETIC SUSPENSION

UDC 511.385

[Article by V. V. Lebedev and P. I. Chinayev, Kiev Higher Military Aviation Engineering Academy of the Air Force, Leningrad, Izvestiya Vuzov, Fiziko-Matematicheskiye Nauki, No 3, 1973, recommended by the Academy, submitted 9 October 1970, pp 85-88]

Moments due to the non-sphericity of a sphere and the dissipation of energy in the material of the rotor are considered. The dependences between the braking moments and precession moments are established, and methods of their practical determination are indicated.

A contactless magnetic suspension of a body rotating in a vacuum may serve as a basis in the development of promising gyro instruments of increased accuracy. If we select an ideal ball (homogeneous, isotropic), from the standpoint of weight, geometry, and magnetic properties, in the absence of dissipation of energy in the material of the rotor no moments will act on it. At the same time, any deviations of the ball from an ideal sphere will lead to the appearance of braking moments and moments of precession. The magnitude of the moments of precession applied to the rotor is a measure of its freedom as a gyroscope.

We will assume that an imperfect ball of an isotropic material may be replaced by an equivalent ellipsoid with semiaxes a, b, c , of a homogeneous material with a permeability μ and with demagnetizing factors that are different in magnitude:

$$N_x \neq N_y \neq N_z.$$

We will consider that losses to remagnetization, rotary hysteresis, and eddy currents may be considered by introducing the constant angle γ_M by which the components of the magnetization vector M , perpendicular to

USSR

UDC: 62-50

DANILYUK, A. A., CHINAYEV, P. I.

"On the Problem of Invariance of the Motion of Associated Bodies"

Tr. 3-go Vses. soveshchaniya po teorii invariantnosti i yeye primeneniyu v sistemakh avtomat. upr. T. 2. Primeneniye invariantn. sistem avtomat. upr. (Works of the Third All-Union Conference on the Theory of Invariance and its Application to Automatic Control Systems. Vol. 2. Use of Invariant Automatic Control Systems), Moscow, "Nauka", 1970, pp 138-144 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9A149)

Translation: The paper deals with the possibility of achieving conditions of invariance with regard to the physical realizability for cases of joint motion of associated bodies which: a) partake of translational motion along a trajectory described by an approximately analytical function (an arbitrary segment of the profile of a mountainous terrain), and b) partake of rotational motion. Authors' abstract.

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Vector Studies

USSR

UDC 595.771:591+591.54

CHINAYEV, P. P., Uzbek Institute of Medical Parasitology,
Samarkand

"The Biology and Ecology of the Malaria Mosquito *Anopheles Pulcherrimus* Theo. (Diptera, Culcidae) in Uzbekistan"

Leningrad, Entomologicheskoye Obozreniye, Vol 50, No 3, 1971,
pp 518-528

Abstract: Studies were made at the breeding places and refuges of *Anopheles pulcherrimus* in the river valley of the Syr Darya (Golodnaya Steppe) in 1950-1952 and during 1953-1955 in the bottomland of the lower Karatag River, and at certain other selected locations in Uzbekistan. Third instar larvae hibernate in slow-moving streams and canals and in the coastal zone of lakes and swamps fed by ground water. The time of appearance of the first generation depends on the type of winter. In the central zone after hibernation during a mild winter, mosquitoes appear in buildings at the beginning of April, while after a cold, long winter, they first appear in late June. The mosquito

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USSR

CHINAYEV, P. P., Entomologicheskoye Obozreniye, Vol 50, No 3, 1971, pp 518-528

is found in all types of buildings, including drafty, brightly-lit structures. Out of doors, mosquitoes take refuge in grassy vegetation (up to 20% of the total catch), caves, animal burrows, pools, and under bridge spans. Up to 95% of the females observed in buildings show various stages of blood digestion throughout the whole season: they ingest blood starting from their emergence in the spring until 10-12 days before death at the end of September or beginning of October. Their developmental cycle in April lasts 30 days in the period of low temperatures (15-17°C) and 20 days in May. In June, July and early August (mean daily temperature 27°C), the duration of the cycle is 11 days. *Anopheles pulcherrimus* is characterized by a small amplitude curve, which shows a sharp drop in the number of mosquitoes during September.

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1/2 024 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--COPRECIPITATION OF SMALL AMOUNTS OF GALLIUM WITH SOME METAL
HYDROXIDES -U-
AUTHOR-(04)-PLOTNIKOV, V.I., GIBOVA, E.G., KOCHETKOV, V.L., CHINAEVA, V.P.
COUNTRY OF INFO--USSR
SOURCE--VESTN. AKAD. NAUK KAZ. SSR 1970, 26(2), 67-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--GALLIUM, HYDROXIDE, ALUMINUM COMPOUND, IRON COMPOUND, TITANIUM
COMPOUND, ZIRCONIUM COMPOUND, CHEMICAL PRECIPITATION, RARE EARTH
COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1981/0440 STEP NO--UR/0031/70/026/002/0067/0068
CIRC ACCESSION NO--AP0050461
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0050461

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE NATURE OF THE HYDROXIDE COLLECTOR ON THE COPPTN. OF GA WAS STUDIED. THE COPPTN. INCREASES WITH HYDROXIDES OF THE FOLLOWING METALS AL IS LESS THAN SC IS LESS THAN FE IS LESS THAN TI IS LESS THAN ZR IS LESS THAN TH. AT THE BEGINNING OF MAX. PPTN. OF GA (PH 6), THE HYDROXIDES ARE NEARLY COMPLETELY PPTD. IN THE CASE OF LA AND MG, THE COPPTN. CURVE IS MORE COMPLEX. AN INCREASE IN PH LEADS TO THE DISSOLN. OF THE GA HYDROXIDE PPT. BUT WITH THE BEGINNING OF PPTN. OF LA AND MG HYDROXIDES, IT IS AGAIN PPTD. THE COPPTN. OF GA WITH HYDROXIDES OF THE RARE EARTH ELEMENTS INCREASES IN THE SERIES ER IS LESS THAN DY IS LESS THAN TB IS LESS THAN GD. THE COPPTN. OF GA DEPENDS ON THE NATURE OF THE HYDROXIDE COLLECTOR. GA IS CAPTURED BY THE METAL HYDROXIDES FORMING COMPODS. OF THE GALLATE TYPE. THE EFFECT OF THE ORDER OF MIXING OF THE SOLNS., TEMP., AMTS. OF GA AND COLLECTOR IN THE SAMPLE, CONC. OF SALTS, ETC. DIFFERS LITTLE FROM LITERATURE DATA, E.G., FOR IN.

UNCLASSIFIED

USSR

UDC: 621.374.5

VOIKOV, A. S., CHINENKOVA, S. V.

"On the Selection of Material for Acoustic Lines in Magnetostriction Delay Lines"

Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR (Works of Academic Institutes of Communications. Ministry of Communications of the USSR), 1970, vyp. 51, pp 165-172 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5G292)

Translation: The authors study the coefficient of dynamic magnetostriction, mechanical figure of merit, Curie point, reversible permeability and temperature coefficient of delay of magnetostriction delay lines made from 42NKhTYu, 44NKhTYu and N45KhT precipitation-hardened Elinvar alloys as a function of heat-treat temperature. Taking an estimate of the effect which the properties of the material of the acoustic line have on the characteristics of the delay line as a basis, the authors present recommendations on the selection of acoustic line material for different delay lines. Bibliography of six titles. Resumé.

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1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--EFFECT OF HEAT TREATMENT ON THE MAGNETIC PROPERTIES AND QUALITY
FACTOR OF THE SEVERELY WORKED ALLOY 42NKHTYU, ELINVAR -U-
AUTHOR-(02)-VOLKOV, A.S., CHINENKOVA, S.V.
COUNTRY OF INFO--USSR
SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 433-436
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--IRON NICKEL ALLOY, ALLOY HEAT TREATMENT, MAGNETIC
PERMEABILITY, ALLOY PHASE TRANSFORMATION, CURIE POINT, DISPERSION
HARDENING, ANNEALING TEMPERATURE, HOT WORKING/(U)42NKHTYU IRON NICKEL
ALLOY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0344 STEP NO--UR/0126/70/029/002/0433/0436
CIRC ACCESSION NO--AP0129576
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129576

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MAGNETIC AND MECHANICAL PROPERTIES OF THE ELINVAR ALLOY 42NKHTYU (FE, 42PERCENT NI, 5.5 CR, 2.7 TI) SUBJECTED TO A SEVERE DEGREE OF WORKING AND ANNEALED AT VARIOUS TEMP. WERE STUDIED. THE MAGNETIC PERMEABILITY IN PARTICULAR WAS VERY SENSITIVE TO THE TEMP. OF HEAT TREATMENT AND ALSO THE TEST TEMP. THESE EFFECTS WERE CORRELATED WITH PHASE TRANSFORMATIONS AS INDICATED BY THE X RAY DIFFRACTION PATTERNS OF THE CORRESPONDING MATERIALS. A CONSIDERABLE FALL IN CURIE POINT ACCOMPANYING DISPERSION HARDENING WAS ATTRIBUTED TO A REDUCTION IN EXCHANGE ENERGY WHICH PASSES THROUGH A MIN. AT 550DEGREESC.

UNCLASSIFIED

Thermomechanical Treatment

USSR

UDC: 669.295'71'28:621.789-974

KHOREV, A. I., CHINENOV, A. M. (Deceased), and MARTYNOVA, M. M.

"Thermomechanical Treatment of Alloys of the Titanium-Aluminum-Molybdenum System"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, Sept 71, no 9, pp 43-46

Abstract: This study concerns the effect of thermomechanical treatment (TMT) on the hardening of titanium alloys. TMT combines quenching, forming, and aging. The Ti-Al-Mo test alloys had a constant aluminum content (3%) with Mo content varying from 0.5 to 30%. Alloy strips were quenched from a temperature 50°C below that of $\alpha\beta$ transformation (holding time 15 mins) and cold rolled for 20 and 40% deformations. Aging was performed at 450 and 500°C for 5 and 25 hrs. It was found that hardening due to cold deformation is a function of phase composition; it is maximal in an alloy of Ti with 3% Al and 15% Mo possessing high forgeability at cold deformation. Cold deformation minimizes primarily uniform elongation while affecting to a lesser degree localized elongation. Compared to conventional strengthen-

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USSR

KHOREV, A. I., et al, Metallovedeniye i termicheskaya obrabotka metallov,
Sept 71, no 9, pp 43-46

ing-type thermal treatments, TMT provides higher strength while frequently increasing plasticity as well. Deformation of the Ti+3% Al+15 Mo alloy by 20% prior to aging at 500°C for 25 hrs increases its strength from 155 to 172 kgf/mm² while decreasing its per-unit elongation from 4 to 3%.

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CHINGISOVA, R.A.

JPRS 58183
8 February 1973

UDC 615.217.32-015.46

INACTIVATION OF O-ALKYL-S-HEXYLMETHYLTHIOPHOSPHONATES
BY ANIMAL BODY TISSUES

Article by V.I. Rozengart, R.A. Chingisova, V.G. Shmeleva, and
L.G. Shcherbak, Department of Biochemistry, 1st Leningrad Medi-
cal Institute named I. P. Pavlov, Moscow, USSR; Zhurnal Meditsiny
Khimii, Russian, Vol 17, No 5, 1972, pp 533-537

The rate of detoxification of anticholinester-
ase compounds was evaluated by the reduction
in concentration of unaltered inhibitor, the
residual quantity of which was determined by
thin-layer chromatography.

In all tissues the rate of inactivation of
LG-63 (O-ethyl-S-hexylmethylthiophosphonate)
was proportional to the concentration of in-
hibitor within the range of 1-5 micromoles.
Further increase in toxin concentration led
to an increase in the rate of its detoxifica-
tion in liver and blood homogenates, and to a
reduction of the rate in kidney homogenates.
In 6 hours of incubation the degree of inhibi-
tor inactivation did not exceed 30-40 percent
in blood and 60-70 percent in brain, liver,
and kidneys. Under similar conditions O-hexyl-
S-hexylmethylthiophosphonate was inactivated
at an identical rate for all tissues studied,
normally by not more than 33-45 percent within
6 hours. When LG-63 was injected intraperi-
toneally its concentration in tissues decreased
by approximately 50 percent within the period
from 30 minutes to 2 hours after injection.

As is known, the toxicity of organophosphorus compounds
stems from their ability to suppress cholinesterase. However,
we do not always observe a direct correlation between the
anticholinesterase activity of organophosphorus compounds and

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toxic toxicity. This is explained by the fact that a great number of factors are involved in the manifestation of a toxin's toxic properties within the body. The most important of these factors are enzymatic detoxification of the inhibitor and, possibly, nonspecific binding of organophosphorus compounds with various proteins. These processes cause a more or less rapid reduction in the concentration of free inhibitor in tissues. Obviously the rates of detoxification are different for different organophosphorus compounds. However, the published data on this problem are relatively limited and often contradictory [1-3].

We studied the detoxifying ability of some tissues from white rats in regard to two structurally similar compounds of the O-alkyl-3-hexylmethylthiophosphonate series, synthesized in the Laboratory of Academician N.I. Kabachnik at the Institute of Organic-Elemental Compounds, USSR Academy of Sciences.

Procedures

L-63 (O-ethyl-3-hexylmethylthiophosphonate) and CA-95 (O-n-hexyl-3-hexylmethylthiophosphonate) were studied. The former is one of the most active anticholinesterase compounds of the O-ethyl-3-alkylmethylthiophosphonate series [4,5]. We had previously studied the distribution of this compound within the bodies of white rats after various means of its administration at different doses [6,7]. CA-95 is very similar in structure to L-63 and differs from it by having a longer O-alkyl radical.

The symptoms and investigation of the anticholinesterase properties of these compounds had been described earlier [4,5,8].

We evaluated the detoxifying ability of tissues in regard to organophosphorus compounds on the basis of the reduction in active inhibitor concentration after its addition to a homogenate of the tissue under investigation. Blood, as well as brain, liver, and kidney tissues from adult white rats, carefully ground in a mortar with cold, were mixed in volumetric ratios of 1:1 with 1/15 M pH 7.5 phosphate buffer and physiological solution containing the needed quantity of organophosphorus compound. A fourfold volume of ethyl alcohol was added immediately after mixing or after various periods of incubation at 37°C. The mixture was ground for 3 minutes in a glass homogenizer, allowed to stand chilled for 30 minutes, and then centrifuged for 5 minutes at 3,000 rpm. We determined the concentration of organophosphorus compound in the supernatant (the extract) by thin-layer chromatography employing our modification [11] of Akortman's method [9,10].

USSR:

UDC 577.153.9.014.05

ROZENGART, V. I., CHINGISOVA, R. A., SHMELEVA, V. G., and SHCHERBAK, I. G.,
Chair of Biochemistry, First Leningrad Medical Institute imeni I. P. Pavlov

"Breakdown of an Organophosphorus Cholinesterase Inhibitor in Animal Tissues"

Moscow; Voprosy Meditsinskoy Khimii, No 3, 1971, pp 266-270

Abstract: The purpose of the work was to study the ability of rat tissues (liver, kidneys, brain) and blood to detoxify LG-63 (O-ethyl-S-hexyl methylthiophosphonate), an organophosphorus cholinesterase inhibitor. A mixture of tissue and LG-63 was incubated at 37°C for up to 6 hours, after which the amount of free inhibitor was determined by an enzymatic method based on chromatographic separation of the inhibitor and its subsequent detection from its ability to inhibit esterase. Regardless of the original concentration of the inhibitor, the various tissues could not decompose more than 50 to 60% in 6 hours; blood decomposed only 25 to 30% of the substance in the same period of time. From practical point of view, therefore, LG-63 cannot be effectively detoxified because the symptoms of poisoning develop very rapidly and the inhibition of cholinesterase by the tissues ends completely within one hour.

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USSR

UDC: 681.3

NESHOKOTSAS, E., CHIRITSA, V., KILDA, B. V.

"Concerning the Construction of an Analog-Digital Complex Based on the MN-14 and Razdan-3 Computers and the UP-1 Converter"

V sb. Analogovaya i analogo-tsifr. vychisl. tekhn. (Analog and Analog-Digital Computer Technology—collection of works), vyp. 4, Moscow, "Sov. radio", 1971, pp 3-8 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V550)

Translation: The paper deals with the problems of constructing a combination computer system which provides controllable accuracy and speed. Authors' abstract.

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USSR

UDC 612.171

CHIRKIN, A. S., and KURMAYEV, O. D., Chair of Human and Animal Physiology, Kazan State Pedagogical Institute, Kazan

"Origin and Mechanism of Training Bradycardia"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 56, No 6, Jun 70, pp 916-920

Abstract: The tonus of extracardial nerves was studied in experiments on five dogs trained to run on a treadmill and five untrained dogs. Shifts in the frequency of heartbeat after surgery to interrupt nerve connections to the heart indicated that the tonus of the n. vagus remained unchanged following systematic muscular activity in training, while that of the sympathetic nerves innervating the heart decreased. The response of the heart to stimulation by both sympathetic nerves and the consequent predominance of the tonus of the vagus over that of the sympathetic nerves constitute one of the mechanisms that are responsible for the development of bradycardia as a result of physical training.

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USSR
Automata

USSR

UDC 621.317.757

MINTS, M. YA., SMELYAKOV, V. V., and CHINKOV, V. N.

"A Digital Automation for Monitoring Linear Quadrupoles"

USSR Author's Certificate, Class G O s 15/46, No 317068, filed 13 Sep 68, published 22 Nov 71 (from RZh-Avtomatika Telemekhanika i Vychislitel'naya Tekhnika No 3, Mar 73, Abstract No 3 A 391)

Translation: A digital automaton is proposed for monitoring linear quadrupoles. It contains a sinusoidal oscillator, a control unit, an analog-code converter, multiplier devices, flip-flops, recording and integrating counters, and "AND" circuits. To extend the functional capabilities and improve the speed of the device, it includes a delay element and a constant coefficient input switch, with the control unit connected through the delay element to the constant coefficient input switch, one of the multiplier devices, and the recording counter, as well as with the setting inputs of the control flip-flops; the other inputs of the latter are connected to the AND gates of the integrating counters, while the output of one of the flip-flops is connected to the constant coefficient input switch in the other multiplier apparatus. One illustration.

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USSR

UDC: 62-55

MINTS, M. Ya., SMELYAKOV, V. V., CHINKOV, V. N.

"Digital Analyzer of Frequency Characteristics"

USSR Author's Certificate No 281907, filed 16 Dec 68, published 11 Mar 71 (from RZh-Avtomatika, telemekhanika i vychislitel'--naya tekhnika, No. 12, 1971, Abstract No. 12A147P)

Translation: The invention is concerned with the area of frequency characteristics analysis for automatic control systems. Known frequency characteristic analyzers, containing sinusoidal signal oscillators, an analog-code converter, shapers, 2 multipliers, integrating counters, have high method errors when investigating nonlinear systems. The proposed device differs from these instruments in that the analog-code converter is connected to the input of both multipliers, the input of one converter is connected to the signal shaper output through an integrator, the input of the other converter is connected directly to the output of the shaper. Made in this way, the device yields greater accuracy in researching nonlinear systems. Resume

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USSR

UDC: 621.317.757

MINTS, M. Ya., SMELYAKOV, V. V., CHINKOV, V. N.

"An Automatic Digital Machine for Checking Linear Two-Terminal Pair Networks"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 30, Oct 71, Author's Certificate No 317068, Division G, filed 13 Sep 68, published 7 Oct 71, p 175

Translation: This Author's Certificate introduces an automatic digital machine for checking linear two-terminal pair networks. The device contains a sinusoidal signal oscillator, a control module, an analog-code converter, multipliers, flip-flops, registration and integration counters, and AND circuits. As a distinguishing feature of the patent, the functional possibilities of the device are extended and speed is increased by adding a delay element and an input selector for constant coefficients. The control module is connected through the delay element to the input selector for constant coefficients which feeds one of the multipliers and the registration counter, as well as to the set inputs of the control flip-flops. The other inputs of these flip-flops are connected to the

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MINTS, M. Ya., USSR Author's Certificate No 317068

AND circuits of the integration counters, and the output of one of the flip-flops is connected to the input selector for constant coefficients which feeds the other multiplier.

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USSR

SMELYAKOV, V. V., CHINKOV, V. N.

UDC 621.373.42

"Very-Low Frequency Sine-Wave Generator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7,
4 Feb 70, pp 47-48, Patent No 262988, Filed 13 Sep 68

Translation: This Author's Certificate introduces an oscillator which generates sinusoidal oscillations of very low frequency. The unit contains a quartz oscillator, frequency dividers with constant and variable division coefficients, a phase inverter and a code-analog converter. It differs because the operational and metrological qualities of the device are improved by eliminating the effect of the inverse currents of the transistors and reducing temperature and time drift while simultaneously simplifying the circuit. The code-analog converter contains two parallel channels, one of which is based on PNP transistors while the other is based on NPN transistors. In addition, the unit incorporates two rectifiers, a control flip-flop, an inverter and an OR circuit. The input of the first code-analog converter channel is connected through the inverter and rectifier to one of the outputs of the frequency divider with fixed division coefficient. The second output of this frequency divider is connected to the

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USSR

SMELYAKOV, V. V., et al., Otkrytiya, Izobreteniya, Promyshlennyye Obratztsy, Tovarnyye Znaki, No 7, 4 Feb 70, pp 47-48, Patent No 262988, Filed 13 Sep 68

input of the second code-analog converter channel, and the outputs of both channels are connected to the common load impedance, and through the OR circuit to the control flip-flop whose outputs are connected to the rectifiers of both code-analog converter channels.

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UNCLASSIFIED
TITLE--VERY LOW FREQUENCY SINE WAVE GENERATOR -U- PROCESSING DATE--11SEP70
AUTHOR--SMELYAKOV, V.V., CHINKOV, V.N.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 262988
REFERENCE--OTKRYTIYA, IZDBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NO 7, 4 FEB
DATE PUBLISHED--04FEB70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--VERY LOW FREQUENCY, SIGNAL GENERATOR, PATENT, QUARTZ CRYSTAL,
ELECTRONIC OSCILLATOR, TRANSISTORIZED CIRCUIT, ELECTRIC MEASURING
INSTRUMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1084 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0112210
ZZZZZZZZZZZ UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AA0112210

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS AUTHOR'S CERTIFICATE INTRODUCES AN OSCILLATOR WHICH GENERATES SINUSOIDAL OSCILLATIONS OF VERY LOW FREQUENCY. THE UNIT CONTAINS A QUARTZ OSCILLATOR, FREQUENCY DIVIDERS WITH CONSTANT AND VARIABLE DIVISION COEFFICIENTS, A PHASE INVERTER AND A CODE ANALOG CONVERTER. IT DIFFERS BECAUSE THE OPERATIONAL AND METROLOGICAL QUALITIES OF THE DEVICE ARE IMPROVED BY ELIMINATING THE EFFECT OF THE INVERSE CURRENTS OF THE TRANSISTORS AND REDUCING TEMPERATURE AND TIME DRIFT WHILE SIMULTANEOUSLY SIMPLIFYING THE CIRCUIT. THE CODE ANALOG CONVERTER CONTAINS TWO PARALLEL CHANNELS, ONE WHICH IS BASED ON PNP TRANSISTORS WHILE THE OTHER IS BASED ON NPN TRANSISTORS. IN ADDITION, THE UNIT INCORPORATES TWO RECTIFIERS, A CONTROL FLIP FLOP, AN INVERTER AND AN OR CIRCUIT. THE INPUT OF THE FIRST CODE ANALOG CONVERTER CHANNEL IS CONNECTED THROUGH THE INVERTER AND RECTIFIER TO ONE OF THE OUTPUTS OF THE FREQUENCY DIVIDER WITH FIXED DIVISION COEFFICIENT. THE SECOND OUTPUT OF THIS FREQUENCY DIVIDER IS CONNECTED TO THE INPUT OF THE SECOND CODE ANALOG CONVERTER CHANNEL, AND THE OUTPUTS OF BOTH CHANNELS ARE CONNECTED TO THE COMMON LOAD IMPEDANCE, AND THROUGH THE OR CIRCUIT TO THE CONTROL FLIP FLOP WHOSE OUTPUTS ARE CONNECTED TO THE RECTIFIERS OF BOTH CODE ANALOG CONVERTER CHANNELS.

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UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--EFFECT OF TEMPERATURE AND SOLUBILIZATION OF HYDROCARBONS ON THE
MEAN MICELLAR WEIGHTS IN AQUEOUS SODIUM OLEATE SOLUTIONS -U-
AUTHOR--(03)-CHIRNIKOVA, A.V., MARKINA, Z.N., REBINDER, P.A.
COUNTRY OF INFO--USSR
SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 2, PP 288-292
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--THERMAL EFFECT, ORGANOSODIUM COMPOUND, OLEIC ACID,
HYDROCARBON, SOLUBILITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1549 STEP NO--UR/0069/70/032/002/0288/0292
CIRC ACCESSION NO--AP0112543
UNCLASSIFIED